Objective
The authors report about the special applications of miniaturized extracorporeal systems (MECC) in their clinic. Application of MECC with different indications as used at the University Hospital Regensburg in the period of 1998 up to November 2006.

Study Design
Summary of a single-center clinical experience

Methods
Experience with warming-up in drowning patients, circulatory arrest in deep hypothermia as an option for surgery of cerebral aneurysms, aortic surgery under circulatory arrest, life support systems, extracorporeal pulmonary support and inter hospital transfer with percutaneous extracorporeal lung assist (PECLA) or transportable minimal extracorporeal circulation is described.

Results
Concerning PECLA treatment, detailed clinical results at the University Hospital have recently been published (CE 1-45). In 151 applications, a total of 192 gas exchange devices were necessary for a total time of perfusion of 1,056 days. Single applications lasted for more than 4 weeks. Of 151 patients, 78 could be weaned successfully from the system.

Commentary
Extracorporeal circulation today is a topic beyond cardiac surgery. Extension of this method allows applying therapy, which could not be possible without this ongoing development in perfusion.